We claim:

1. A light grid comprising:

a predetermined number of pairs of transmitters that emit light rays and receivers, said pairs of transmitters and receivers forming beam axes wherein the light rays emitted by a respective transmitter impinge on a respective receiver of a pair if the beam path for a beam axis is clear; and

a control unit for controlling the transmitters and for evaluating the receiving signals present at the output of the receivers, wherein an object detection signal is generated in dependence on the signals received when an object interferes with at least one of the beam axes, and wherein the control unit assigns a separate bit word to each beam axis, each separate bit word including at least a first bit and a second bit, where the beam axes are divided into a number of predetermined regions via at least one first bit of the bit words, the object detection mode within a region of the number of predetermined regions being preset by selecting the bit value of at least one second bit for the bit words of the beam axes within the respective region of the number of predetermined regions.

2. The light grid according to claim 1, wherein the beam axes in a predetermined scanning direction can be activated periodically one after another via the control unit, wherein in this scanning direction a first bit of a bit word for the first beam axis of a region of the predetermined regions assumes the bit value **one** to indicate the beginning of a region.

3. The light grid according to claim 2, further comprising an object counter wherein for each scanning operation the number of beam axes interrupted by an intervening object are counted in the control unit with the object counter.

4. The light grid according to claim 3, wherein the object counter is reset respectively at the start of each region of the number of predetermined regions.

5. The light grid according to claim 4, wherein a size of the intervening object within a region of the number of predetermined regions is defined by a number N of successively interrupted beam axes that are counted in the control unit with the object counter and recorded within a region of the number of predetermined regions.

6. The light grid according to claim 3, wherein at least one region of the number of predetermined regions is a blanking region, within which an object of a specified size range interferes with at least one beam axis and does not trigger an object detection signal, and wherein the specified size range is preset with the second bit and a third bit of the bit words for the beam axes in the blanking region.

7. The light grid according to claim 3, wherein at least one region of the number of predetermined regions is a region of reduced resolution, within which only interventions of an object having a predetermined or greater size result in triggering an object detection

detection signal, wherein the predetermined size is greater than the number of second bits of the bit words preset with a value for the beam axes in the region of reduced resolution.

8. The light grid according to claim 6, wherein the second bit (BMAX) or a fourth bit (RMAX) of the bit word serves to preset a maximum object size N_{max} within the at least one region of the number of predetermined regions, wherein N_{max} corresponds to the maximum number of successively interrupted beam axes for which no object detection signal is triggered.

9. The light grid according to claim 8, wherein the second bit of a bit word for a beam axis in a blanking region in the scan direction, respectively assumes the bit value **one** only for the first N_{max} bit words.

10. The light grid according to claim 6, wherein the third bit (BMIN) is used for presetting a minimum object size, wherein N_{min} corresponds to the minimum number of successively interrupted beam axes needed so that no object detection signal is triggered above or equal to N_{min}.

11. The light grid according to claim 10, wherein in a blanking region in the scan direction, the third bit (BMIN) respectively assumes the bit value **one** only for the last N_{min} bit words of the region.

12. The light grid according to claim 9, further comprising one counter that is integrated into the control unit wherein the one counter counts the number of bit words within a respective region of the number of predetermined regions for which at least one of the second bit (BMAX), the third bit (BMIN), and the fourth bit (RMAX) assumes the bit value **one**, and wherein actual counter readouts for generating the object detection signal are continuously compared to the counter readout of said object counter.

13. The light grid according to claim 12, wherein an object detection signal is generated within a blanking region as soon as the counter readout of said object counter is one of higher than the counter readout for the second bit (BMAX) or higher than the counter readout for the fourth bit (RMAX) and lower than the counter readout for the third bit (BMIN).

14. The light grid according to claim 13, wherein for the bit value of the third bit (BMIN) being equal to 0, the blanking region forms a region with reduced resolution.

15. The light grid according to claim 14, wherein an object detection signal is generated within a region with reduced resolution as soon as the counter readout of said object counter is higher than the counter readout for the fourth bit (RMAX).

16. The light grid according to claim 7, wherein at least one region of the beam axes forms a combination region, configured as a reduced resolution and a blanking region

within which an object of a specified size range interferes with at least one beam axis and does not trigger an object detection signal.

17. The light grid according to claim 1, wherein at least one region of the beam axes forms a muting region, within which the object detection can be deactivated in dependence on signals from external sensors and wherein the muting region is specified by means of an additional bit (SEB) of the bit words for the beam axes.

18. The light grid according to claim 17, wherein additional bits M1, M2 of the bit words for the beam axes can be preset for defining the muting region, wherein the bit values encode the signal states of the external sensors.